

Appl. No. 10/523,878
Amdt. dated Aug. 28, 2009
Reply to final Office action of April 28, 2009
Replacement Abstract

ABSTRACT OF THE DISCLOSURE

Composite pressurizable structures overwound with fibers or braided bundles of fibers are described. The pressurizable structures comprise one or more axial sections which themselves comprise both concave and convex surfaces. The shape characteristics are related to geodesic as well as to non-geodesic trajectories of the fibers. Axial sections of the pressurizable structures can be rotated, expanded, or bended with respect to their longitudinal axis. Such pressurizable structures may be used in pressure vessels, flexible pipelines, spring elements, robotic actuators, adaptive buildings among other uses. Manufacturing techniques facilitated by the present structures allow for the construction of very large structures.